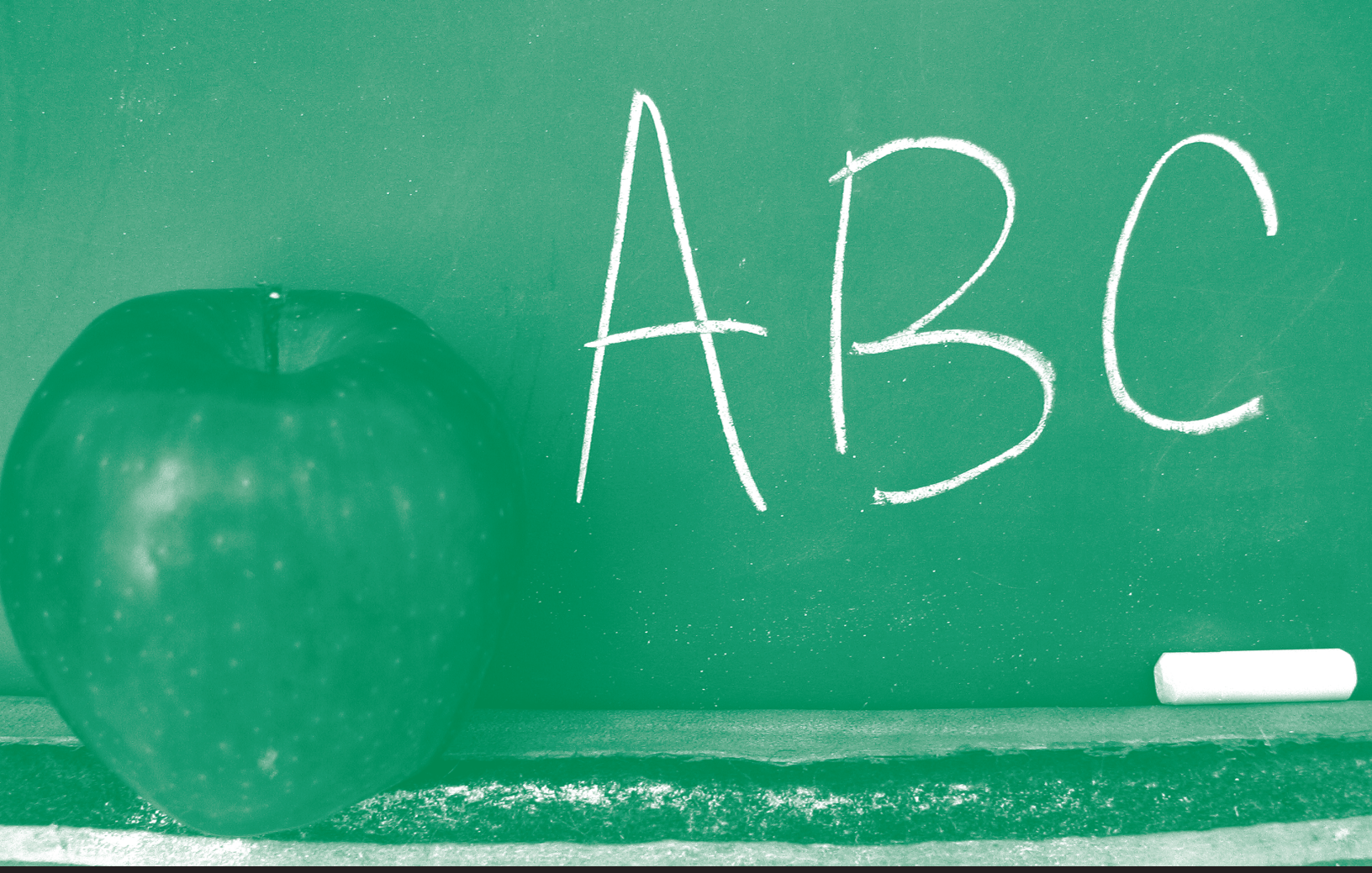

Evaluation of the In-School Tobacco Use Prevention Education Program, 2005-2006

California Tobacco Control Program

Evaluation of the In-School Tobacco Use Prevention Education Program, 2005-2006

June 2008

California Department of Public Health
California Tobacco Control Program

Prepared by
McCarthy, W.J.
Dietsch, B.J.
Dent, C.
Zheng, H.
Bono, G.
Bailey, J.D.
& Hanson, T.L.

Arnold Schwarzenegger, Governor
State of California

Kim Belshé, Secretary
California Health and Human Services Agency

Mark Horton, Director
California Department of Public Health

McCarthy, W.J., Dietsch, B.J., Dent, C., Zheng, H., Bono, G., Bailey, J.D. & Hanson, T.L. (2008). Evaluation of the In-School Tobacco Use Prevention Education Program, 2005-2006. Sacramento, CA.

Contents

Summary

- After years of decline, the prevalence of current tobacco use (cigarettes, smokeless, cigars) among California youth has begun to increase.

- There were no differences in several aspects of Tobacco Use Prevention Education (TUPE) Program implementation between grantee and non-grantee high schools (e.g., no differences in school no-tobacco use policy, suspension policy, hours of teaching TUPE classes and use of curriculum for tobacco use prevention lessons).

- High schools with competitive TUPE grants were more likely than other schools to offer cessation services and referrals for students, cover specific topics on tobacco use, and sponsor school-wide anti-tobacco activities.

- No association was found between TUPE implementation and student smoking behavior (e.g., lifetime tobacco use, current cigarette use, daily cigarette use, and lifetime regular cigarette use).

- According to teachers' reports, TUPE in the classroom decreased from previous years. Teachers' perceptions of support from the district for TUPE were associated with better student tobacco use outcomes (e.g., lower lifetime cigarette use, more intention not to smoke, lower peer cigarette use).

- A more detailed analysis using previous years' data confirmed that high school students increased their current and frequent tobacco use over the two-year period, in particular, cigar and smokeless tobacco use.

- Although TUPE-funded grantee high schools reported higher levels and quality of tobacco-prevention-related activities and cessation services compared to non-grantee schools at each time point, there was no overall change in the type and level of school TUPE implementation between the 2003-2004 and 2005-2006 academic years. This suggests that TUPE grantee schools started out at higher rates of implementation, and maintained, or slightly increased their implementation level advantage.

- There was little systematic evidence to indicate that school-level tobacco policies (such as enforcement of no-use policies, and punitive and supportive consequences for violations) or TUPE practices were associated with student tobacco use or tobacco use precursors in 2005-2006. However, TUPE implementation was associated with reduction in the growth of student tobacco use and students' intention to smoke over the two-year interval between the 2003-2004 and 2005-2006[1] school years.

[1] Previous surveys (2001-2002, and 2003-2004) used active informed consent procedures that required a signature from the parents. This 2005-2006 survey used mixed consent; three-quarters of the survey was conducted with passive informed consent.

Introduction

The 2005-2006 In-School Evaluation of Tobacco Use Prevention Education (TUPE) Programs (IETP) was conducted to fulfill the enabling legislation requirements of Proposition (Prop) 99 (Assembly Bills 75, 99, 816, and Senate Bill 391). Current legislative language requires that the California Department of Public Health (CDPH), California Tobacco Control Program (CTCP) evaluate the effectiveness of the school-based TUPE programs in California. This particular evaluation focused on school-based tobacco use prevention activities in 191 randomly sampled schools, of which 167 participated in the survey. In addition, 57 of the 65 high schools that participated in the 2003-2004 IETP agreed to participate in 2005-2006. The guidelines for evaluating the programs, outlined in California Health and Safety Code Section 104375, call for an assessment of school-based tobacco use prevention activities and measurement of student responses to these activities. The evaluation is intended to measure the extent to which programs funded under Prop 99 promote two major goals: protection of nonsmokers and children from secondhand smoke, and reduction of tobacco usage by adults and youth.

This report is the sixth biennial report conducted by CTCP. Most questions included in the 2005-2006 IETP were taken from previous evaluations to permit comparability of findings across reports. This most recent IETP collected extensive information on adolescent tobacco use and its correlates (e.g., attitudes, exposure to media, social norms) through the in-school administration of the 2005-2006 California Student Tobacco Survey (CSTS). The evaluation also collected data on beliefs and knowledge about tobacco education program implementation and prevention efforts from teachers, school administrators, school TUPE/health coordinators, and district TUPE/health coordinators. The current report uses data from all of these sources to examine TUPE program implementation and program effectiveness.

This evaluation focused on four broad cross-sectional research questions and three broad longitudinal cohort questions with regard to youth tobacco use and prevention in California during the 2005-2006 school year. The school longitudinal component consisted of a re-assessment of 57 high schools and birth cohorts within those schools, which were originally part of the 2003-2004 IETP evaluation sample.

Background

Prior to 1994, the California Department of Education (CDE) allocated school-based TUPE funds to all schools that served students in grades Kindergarten through 12. Since 1994, CDE has allocated school-based TUPE funds to school districts using two different mechanisms. First, funds for TUPE programs in grades four through eight have been allocated to districts on an "entitlement basis," i.e., all schools in tobacco-free school districts serving students in grades four through eight received funding for tobacco use prevention services based on average daily attendance. Second, a "competitive grant" process was used to allocate funds for programs in grades 9 through 12; and, more recently, for innovative programs in grades 6 through 8. Districts with multifaceted programs with measurable objectives, strong rationales for interventions, high levels of community and school involvement, high quality monitoring and evaluation activities, and highly qualified personnel were more likely to receive competitive grants than other districts. Both entitlement and competitive program funds were required to support tobacco specific instruction, reinforcement activities, special events, and cessation programs for students. The IETP provided information from data collected in districts supported by both of these mechanisms, with particular attention paid to schools with competitive grants. Particular attention was paid to schools with competitive grants because their additional TUPE resources, compared to non-TUPE award schools, were expected to yield measurable improvement in TUPE outcomes. Because TUPE funds were allocated more evenly among middle schools, there was less expectation that differences would be observed between schools in relation to TUPE funding.

Research Questions

Research questions with regard to youth tobacco use prevention and education in California included:

Cross-sectional study questions

1. What is the prevalence of tobacco-related behavior, attitudes, knowledge and awareness about tobacco and tobacco use prevention among California students and how does each compare to national rates?

2. What types of school-based tobacco prevention and intervention policies and practices are being implemented in California schools and to what level and consistency are they being implemented?

3. Is program exposure associated with lower levels of student tobacco use and lower levels of factors known to be precursors to tobacco use (e.g., pro-smoking attitudes)?

4. What are the contextual influences, such as the degree of support for teaching TUPE lessons from district administrators, which need to be taken into account when designing more effective school-based TUPE programs? Is TUPE funding an important contextual influence?

Longitudinal cohort study questions

1. How do TUPE funding and district support relate to school implementation component summary measures?

2. How does school TUPE implementation relate to changes in tobacco-use related knowledge, attitudes, and behavior over the two-year period?

3. How do community-level influences affect student tobacco use over the two-year period?

Evaluation Findings

Evaluation Findings: Cross-sectional study

What is the prevalence of tobacco-related behavior, attitudes, knowledge and awareness about tobacco and tobacco use prevention among California students and how do they compare to national rates?

After years of decline, the prevalence of current tobacco use (cigarettes, smokeless, cigar) among California youth has begun to increase. For example, current cigarette use ranges from three percent in sixth grade to 20 percent in twelfth grade (two percent in sixth grade and 17 percent in twelfth grade during 2003-2004). Prevalence of youth tobacco use remains generally low in California, but grows with each successive grade. Youth tobacco use is more prevalent among boys and among Caucasians. There are no consistent regional differences in lifetime and current smoking. A majority of California youth report that they "definitely would not" smoke in the following year (76 percent of middle school students and 58 percent of high-school students). Even though the prevalence of current tobacco use increased, a decreasing trend in lifetime use (52 percent in 2003-2004, 50 percent in 2005-2006 in twelfth grade) implies that the conversion from never smoker to trying tobacco in California youth is still declining.

Overall, the findings for attitudes and beliefs about tobacco use are consistent with the findings in the 2003-2004 CSTS. The vast majority of California's young people continue to report negative perceptions about tobacco use. The majority of students from an early age understand the physical health consequences of tobacco use. Girls were more likely to report believing in the harmfulness of tobacco compared to boys. However, perceived prevalence of peer tobacco use was slightly higher than the previous year.

Fortunately, the overall pattern of results concludes that mean California student cognitions remained generally consistent with low rates of tobacco use, particularly in the lower grades. There are two emerging trends that are cause for concern, however. The first trend is for California youth to report weaker beliefs compared to students nationally about the harmfulness of secondhand smoke and the harmfulness of smoking for only one or two years. The second is a trend for California boys to hold progressively weaker anti-tobacco beliefs as they advance from middle school to high school despite the fact that California girls' anti-tobacco attitudes remain about the same as they advance from middle school to high school.

What types of school-based tobacco prevention and intervention policies and practices are being implemented in California schools and to what level and consistency are they being implemented?

More school staff are aware of science-based tobacco use prevention programs and report using them compared to previous years. Despite this increased awareness, only 44 percent of teachers reported the provision of some kind of TUPE services in the previous year. This is less than the 64 percent of teachers who had reported providing some kind of TUPE education the previous year in the 2003-2004 survey. Although many teachers have mainstreamed tobacco use prevention in their teaching, they continue to rely primarily on conventional teaching methods such as lectures rather than on more interactive methods, such as students role playing the act of refusing a cigarette. They also continue to focus disproportionately on the physical consequences of tobacco use, even though current literature says that teaching refusal skills and correcting high estimates of peer smoking rates are consistently more helpful in reducing youth smoking than discussing the effects of tobacco use on physical health (United States Department of Health and Human Services, 1994).

In addition, almost all school staff reported having a smoke-free school policy and most reported that it was being enforced. It was unclear from the responses how well the schools communicated to students and staff what the consequences would be for violating the school's smoke-free policy. A successful program would ensure that all school staff, students, and parents were familiar with the policy and familiar with the consequences of violating it. This does not appear to be happening consistently. The lack of consistency in school-level and district-level staff responses to questions about the tobacco policy at their school/district, as well as the lack of site coordinators who felt prepared to teach about tobacco, were a concern. Also, the apparent lack of communication between district and site staff about tobacco use prevention strategies appears to be an ongoing problem.

The analysis of teacher, school coordinator, school administrator, and district coordinator reports of program implementation indicated that high schools with competitive TUPE grants were more likely than other schools to offer cessation services and referrals to students, to cover specific topics about tobacco use, to sponsor school-wide anti-tobacco activities, and to provide professional development training to school coordinators. There were no differences in several aspects of TUPE program implementation between grantee and non-grantee high schools (e.g., school no-tobacco use policy, suspension policy, hours of teaching TUPE classes, and use of curriculum for tobacco use prevention lessons).

Overall, school-level policies and practices were associated with students' reported exposure to tobacco prevention services. School district support for implementation of tobacco use prevention lessons and school-wide anti-tobacco activities was associated with higher likelihood of students having received tobacco-related information and reporting that they found such information useful. Across types of schools, tobacco prevention lessons, supportive consequences of violation of no-use policy (coordinator and administrator report) and use of traditional modes of instruction (e.g., lecturing) were positively associated with student recall of exposure to program services.

Is program exposure associated with lower levels of student tobacco use and lower levels of factors known to be precursors to tobacco use (e.g., pro smoking attitudes)?

TUPE effectiveness appears to be enhanced in grantee schools when teachers report high numbers of TUPE-related hours of instruction. Teachers' perceptions of support from the district for TUPE were associated with better student tobacco use outcomes (e.g., lifetime cigarette use, intention not to smoke, peer cigarette use). However, there was little systematic evidence to indicate that school-level tobacco policies (like enforcement of no-use policies, punitive and supportive consequences for violations) or TUPE practices were associated with student tobacco use or tobacco use precursors. In other respects, differences in student tobacco use and tobacco use precursors were not associated differentially with program policies and practices in grantee versus non-grantee schools.

What are the contextual influences, such as the degree of support for teaching TUPE lessons from district administrators, that need to be taken into account when designing more effective school-based TUPE programs? Is TUPE funding an important contextual influence?

The two most cited barriers to providing TUPE were lack of time in the face of competing priorities and the fact that TUPE is not a mandated part of the standard curriculum. In addition, lack of resources and lack of accountability in the form of regular state testing of students' knowledge of TUPE were other barriers to TUPE implementation in school. The major benefits of TUPE funding included increased resources to support implementation of science-based programs and enabling links to community programs and local health agencies.

Analytical results suggest an association between teacher perceptions of school-level support and their perceptions of student interest in TUPE content. This finding implies that it is important for TUPE instruction to have well publicized support from school and district administrators.

Evaluation Findings: Longitudinal cohort study

Of the 65 high schools that participated in the 2003-2004 IETP, 57 schools agreed to participate in 2005-2006 (87.7 percent response rate). Nearly half of the high schools (n=28) were current TUPE grantees.

How do TUPE funding and district support relate to school implementation component summary measures?

Regarding tobacco prevention program structure in the cohort of high schools, there was little evidence of overall change in the type and level of school TUPE implementation between the 2003-2004 and 2005-2006 academic years. However, TUPE funded grantee high schools reported higher levels and quality of tobacco prevention related activities and cessation services than non-grantee schools at each time point. These funded grantee implementation advantages appeared to be mediated through district level support for these activities, which was directly associated with TUPE funding status. This suggests that TUPE grantee schools started out at higher rates of implementation, and maintained or slightly increased their implementation level advantage.

How does school TUPE implementation relate to changes in tobacco use-related knowledge, attitudes, and behavior over the two-year period?

The cohort analysis confirmed that high school students increased their current and frequent tobacco use over the two-year period, especially cigar and smokeless tobacco use. Student pro-smoking attitudes, beliefs, and social environments (intent to smoke, more smoking peers, belief in positive social consequences of tobacco use) increased, while anti-smoking health beliefs and beliefs about the negative social consequences of tobacco use decreased over the two-year period. Students expressed less negative attitudes about the tobacco industry over the two year interval.

On one hand, TUPE implementation was associated with reduction of the growth in student tobacco use and intention to smoke outcomes over the two year interval. On the other hand, cross-sectional findings for the cohort substudy[2] showed overall TUPE implementation was associated with **increased** student tobacco use. These are not mutually exclusive findings. It may be that TUPE implementation was more likely in schools with high rates of student tobacco use (thereby explaining the **positive** cross-sectional relationship) that motivated the increased TUPE activity, but that schools implementing TUPE programs experienced a lower rate of increase in tobacco use rates between 2003-2004 and 2005-2006.

[2] This is a subset of the respondents from the high schools that were followed-up for two years, the 2003-2004 and 2005-2006 surveys.

How do community level influences affect student tobacco use over the two year period?

The investigators constructed a school-level index of community programs by taking the mean of student reports at each school regarding participation or awareness of community tobacco control activities, police enforcement of restrictions on tobacco sales to minors, and on tobacco product possession by minors. This community program index was associated cross-sectionally with smoking but not with changes in smoking. The anti-tobacco media messages index was not related to smoking at either time point or with the observed changes in smoking during the study period.

As for the school demographic factors, average achievement test scores for the school Academic Performance Index (API), and average parent educational attainment were positively associated with two-year changes in the prevalence of student smoking. Partly as a way to illuminate this finding, the investigators examined the change in current smoking over time in relation to students' self-reported academic performance. Consistent with previous literature (Escobedo and Peddicord, 1996) the amount of increase in current smoking prevalence was nearly twice as high in the higher-performing students than in the lower-performing students. It was almost as if the high-performing students were making up for their initially low rates of smoking in ninth and tenth grades by "catching up" with their lower-performing peers in terms of their current smoking prevalence rates as they approached high school graduation.

When contextual factors (e.g., parent education, enrollment, API scores) were included in the model, the impact of TUPE implementation on student smoking was no longer statistically significant,[3] but still suggestive of the benefit of TUPE implementation on reducing student smoking.

[3] p=0.09

Recommendations

School administrators and TUPE coordinators should concentrate TUPE training resources on a few experienced teachers rather than recruiting any available person to teach TUPE lessons. A few experienced TUPE teachers can yield better tobacco use education outcomes among students than can a legion of inexperienced TUPE teacher recruits. District administrators, school administrators, and school TUPE coordinators can benefit by looking to the voluntary health associations, community health agencies, and federal tobacco control resources to help offset the dwindling state TUPE resources that are available to California schools.

School district administrators need to publicly support TUPE activities, to publicize this support regularly, and to indicate that TUPE instruction is as important as other academic instruction. Teacher efforts will be more effective when they know that they have support from their administrators for their TUPE activities.

Future Research on Student Tobacco Use and TUPE

Examining the impact of teacher-level and district staff-level information on student-level tobacco use helps to illuminate the contextual nature of student tobacco use. According to teacher reports, there is an association between a school's TUPE funding status and the impact of teachers' hours of instruction on student tobacco use outcomes. Another consistent contextual feature of successful tobacco use prevention is having a district publicize that it strongly supports the involvement of its teachers in TUPE activities.

Including a school cohort analysis where 57 high schools were re-surveyed along with the usual cross-sectional survey was expected to help identify causal pathways that might not have been apparent in strictly cross-sectional data. In practice, the school cohort analysis confirmed that high school students increased their current tobacco use over the two-year period. The association between TUPE program implementation and student tobacco use disappeared when other predictors (e.g., parent education, enrollment, API scores) were included in the analyses, but it is still suggestive of the benefit of TUPE implementation on reducing student smoking. The cohort analysis did, however, clarify that the negative relationship observed between a school's number of TUPE activities and the prevalence of its student tobacco use and intentions was **not** mediated by most of the hypothesized tobacco use precursors, for example, perceived negative social or health consequences of tobacco use. The cohort analysis also made it clear that non-TUPE school-level factors, such as a school's average parent educational attainment and its API score, were important influences to consider when evaluating the impact of a school's TUPE activities on its prevalence of student smoking.

References

USDHHS (United States Department of Health and Human Services). 1994. *"Preventing tobacco use among young people: A report of the Surgeon General."* Atlanta, GA: USDHHS, Public Health Service, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Escobedo, L. G. and J. P. Peddicord. 1996. "Smoking prevalence in U.S. birth cohorts: The influence of gender and education." *American Journal of Public Health 86(2)*:231-236.